



ON Semiconductor®

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DATA SHEET

P-Channel Silicon MOSFET

ECH8617 — General-Purpose Switching Device

Applications

Features

- Ultrahigh-speed switching.
- 4V drive.
- Composite type, facilitating high-density mounting.

Specifications

Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-100	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		-1.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-12	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	1.3	W
Total Power Dissipation	P_T	Mounted on a ceramic board (900mm ² ×0.8mm)	1.5	W
Channel Temperature	T_{ch}		150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$	-100			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -100\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$, $I_D = -1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$, $I_D = -1\text{A}$	1.8	3.1		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1\text{A}$, $V_{GS} = -10\text{V}$		400	520	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.5\text{A}$, $V_{GS} = -4\text{V}$		460	645	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		630		pF
Output Capacitance	C_{oss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		41		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		38		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		10.0		ns
Rise Time	t_r	See specified Test Circuit.		5.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		91		ns
Fall Time	t_f	See specified Test Circuit.		27		ns

Marking : FK

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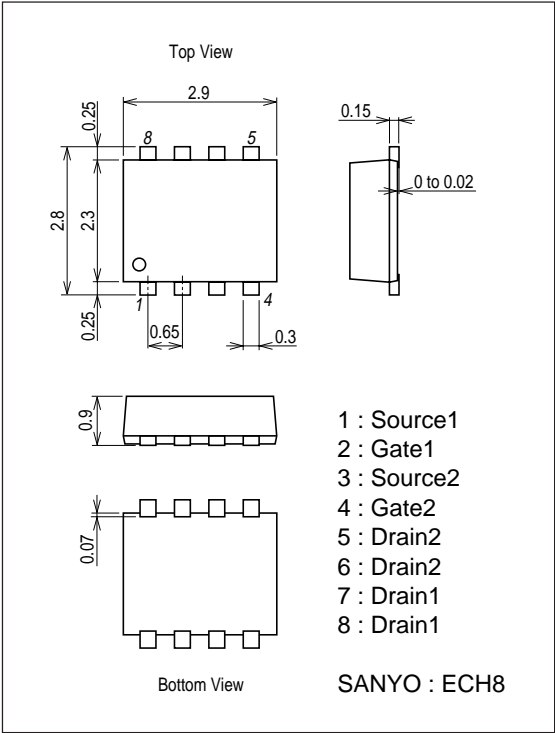
ECH8617

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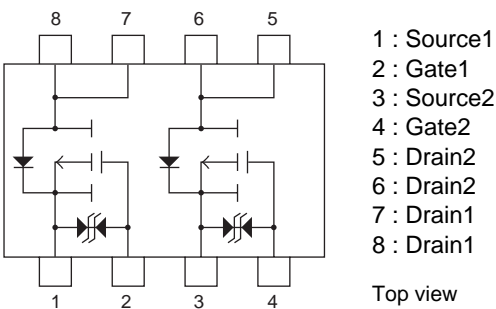
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-50V, V_{GS}=-10V, I_D=-1.5A$		14.7		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-50V, V_{GS}=-10V, I_D=-1.5A$		1.6		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-50V, V_{GS}=-10V, I_D=-1.5A$		2.8		nC
Diode Forward Voltage	V_{SD}	$I_S=-1.5A, V_{GS}=0V$		-0.80	-1.2	V

Package Dimensions

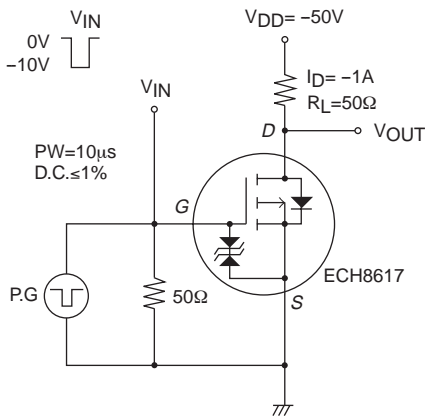
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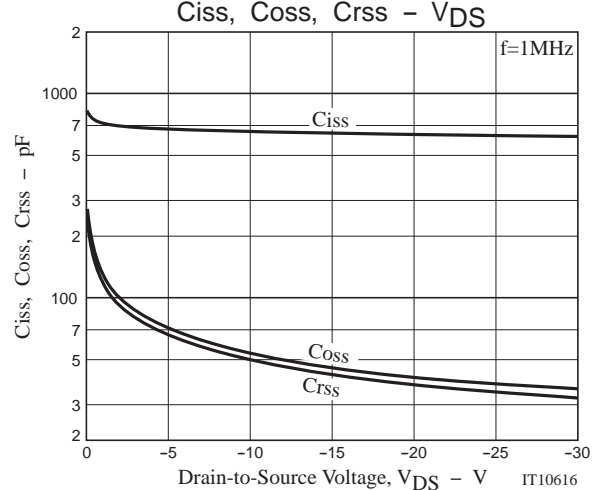
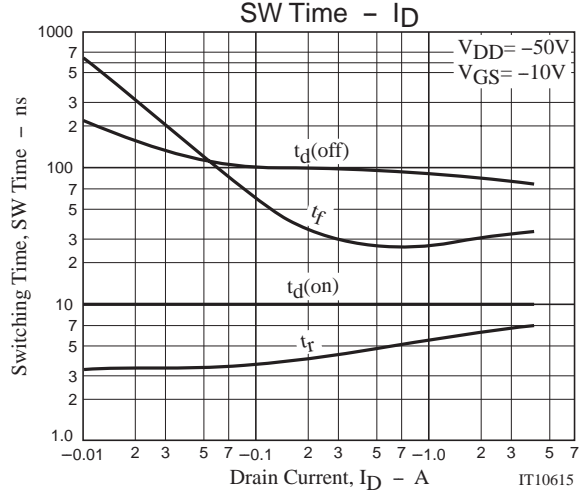
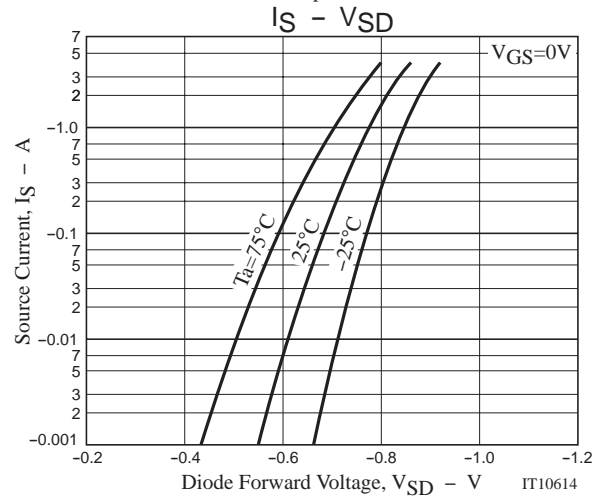
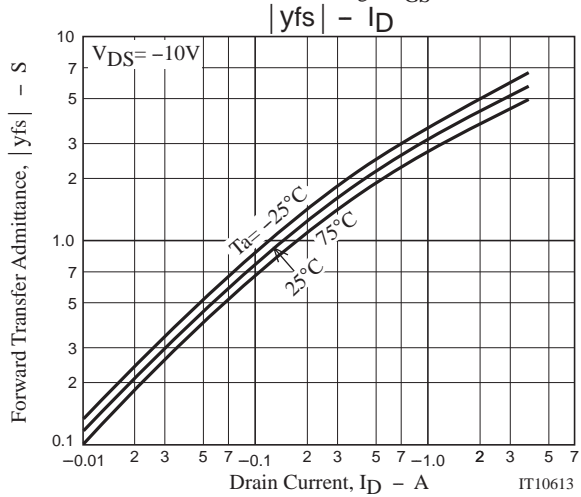
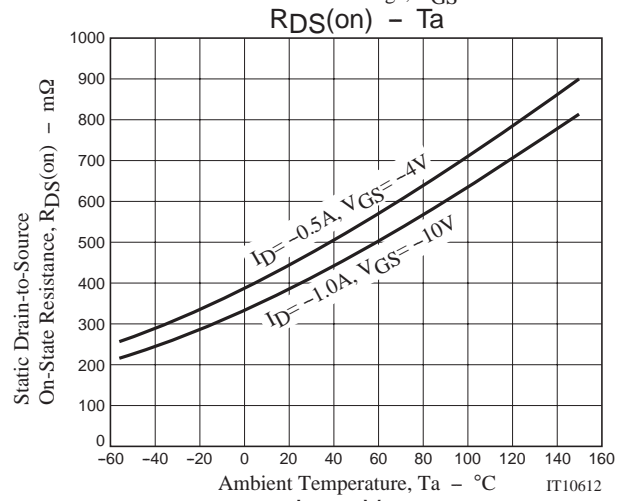
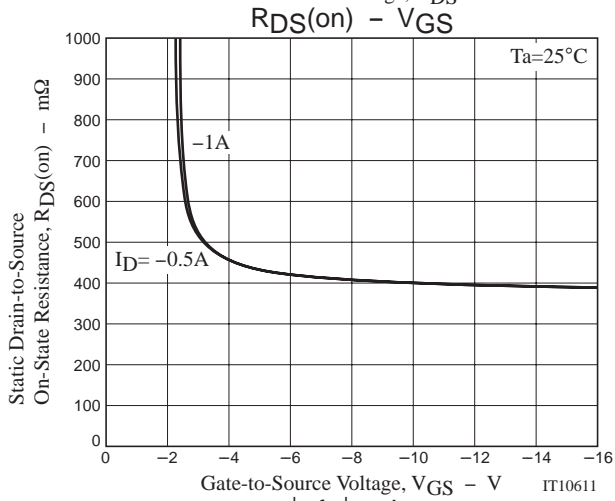
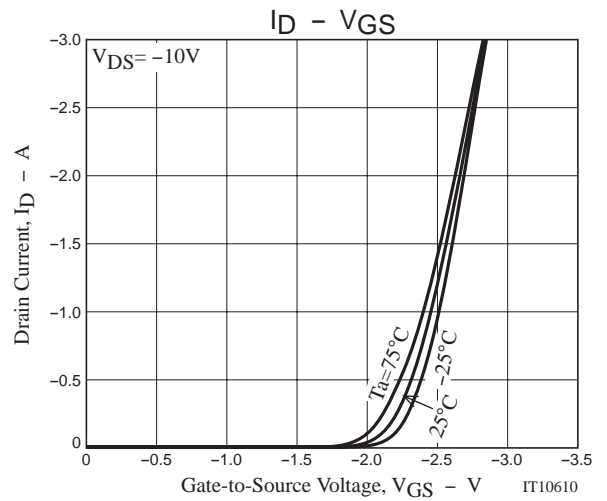
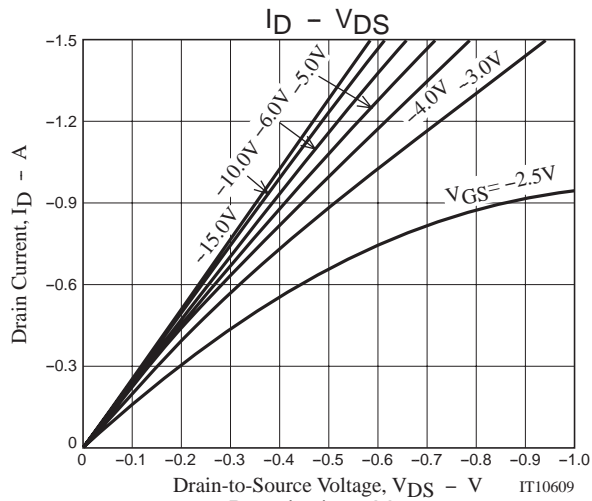


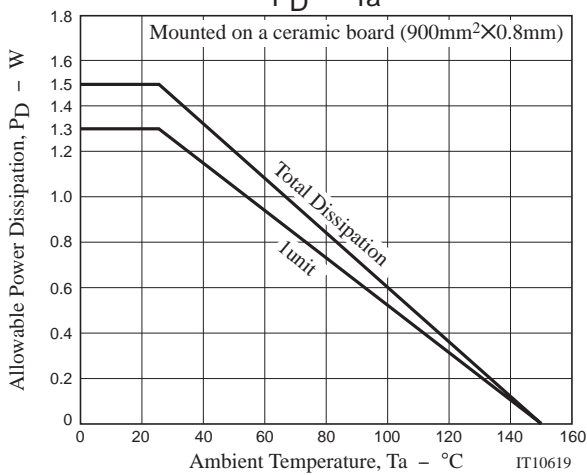
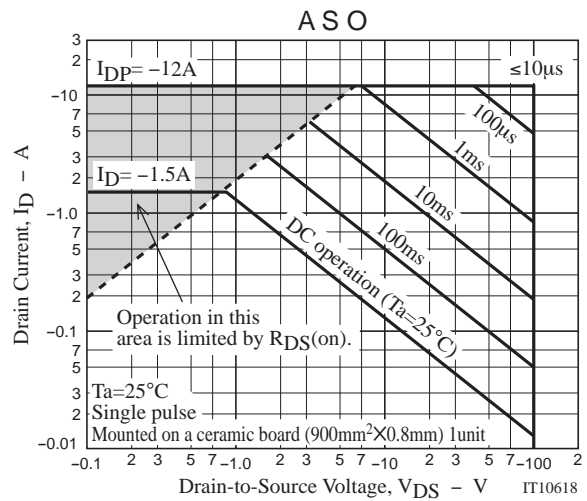
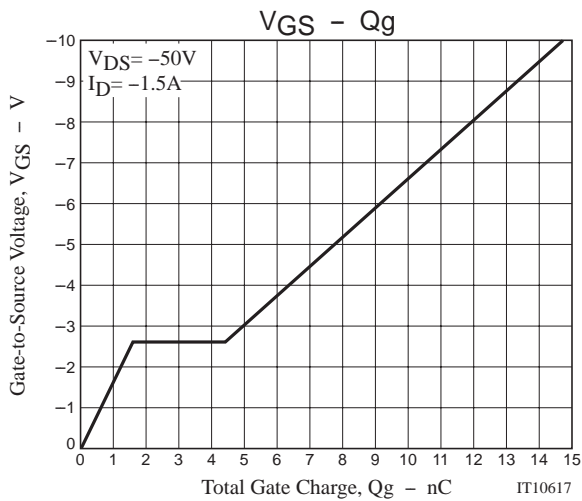
Electrical Connection



Switching Time Test Circuit







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